We claim:

1. A hub and bearing assembly for use in a motor vehicle having a brake system comprising:

a hub having a first axial bore that extends from a first end to a second end for receiving an axle for the motor vehicle, a peripheral surface with a radial flange adjacent said first end for affixing a wheel thereto and a cylindrical mounting surface located between said second end and said radial flange;

a bearing pack having an inner race and an outer race for retaining first and second roller elements with an exciter ring fixed to said inner race and located between said first and second roller elements, said inner race being located on said cylindrical mounting surface and fixed to said hub, said outer race having a first radial opening therein in alignment with said exciter ring and being located in a second axial bore in a support member integral to said motor vehicle, said outer race being retained in said support member by a ring located in a groove in said outer race such that said first radial opening is aligned with a second radial opening in said support member; and

a sensor fixed to said support member and having a cylindrical body with a functional length and a sensing area that extends through said first and second radial openings and into said bearing pack to a position adjacent to said exciter ring, said sensor being activated by movement of said exciter ring to provide an electronic control unit with a signal relating to the rotation of said wheel.

2. The hub and bearing assembly as recited in claim 1 wherein said outer race is further characterized by a flange with a chord surface thereon that engages a projection on said support member to prevent said outer race from rotating.

3. The hub and bearing assembly as recited in claim 2 wherein said first radial opening that receives said functional length and sensing area is larger than said second radial opening in said support member to provide a

measure of tolerance to prevent damage of said functional length and sensing area should said outer race rotate.

4. The hub and bearing assembly as recited in claim 3 wherein said sensor is sealed in said second radial opening and said functional length and sensing area is sealed in said bearing pack such that said functional length, sensing area, and exciter ring are protected from any environmental contamination that may be present.

5. The hub and bearing assembly as recited in claim 4 wherein said exciter ring is defined by a magnetic encoder, and said sensing surface is the area where the magnetic field change is applied and said signal is a magnetic field change conversion corresponding to the rotation of said wheel.

6. A corner module for use in a motor vehicle having a brake system, said corner module including a sensor and a bearing pack that is located between a hub and a support member, said hub being attached to a wheel of the vehicle and having a mounting surface adjacent to an end for receiving an inner race of said bearing pack, said support member having an axial opening therein for receiving an outer race of said bearing pack, said inner and outer races retaining first and second roller elements such that said wheel may rotate with respect to said support member, said bearing pack being characterized by an exciter ring that is fixed to said inner race and located between said first and second roller elements; said outer race being characterized by an opening that is in radial alignment with said exciter ring; and said sensor being characterized by being fixed to said support member with a functional length and a sensing area that extends through said opening in said outer race and into said bearing pack to a position adjacent said exciter ring, said sensing area being activated by movement of said exciter ring to provide an electronic control unit with a signal relating to the rotation of the wheel for use in controlling an anti-skid brake system.

7. The corner module as recited in claim 6 wherein said outer race is further characterized by a flange that engages said support member to

align said exciter ring with respect to said functional length and sensing area.

8. The corner module as recited in claim 7 wherein said opening in said outer race is characterized by being larger than a cylindrical body of said functional length and sensing area to assist in locating said functional length and a sensing area within said bearing pack.

9. The corner module as recited in claim 8 wherein said outer race is further characterized by a peripheral groove adjacent to a first end for receiving an attachment member to axially retain said outer race within said axial opening in said support member.

10. The corner module as recited in claim 9 wherein said attachment member is a snap ring.

11. The corner module as recited in claim 10 wherein said support member is characterized by an annular rib that surrounds said axial opening, said annular rib having a second opening for receiving said functional length and sensing area of said sensor.

12. The corner module as recited in claim 11 wherein said second opening is sealed to prevent environmental contamination from entering said bearing pack and effecting information derived by said sensor.

13. The corner module as recited in claim 12 wherein said exciter ring is characterized by a magnetic encoder; said magnetic field change is characterized by a change in magnetic field and said signal is a an emf corresponding to the rotation of said wheel.

14. The corner module as recited in claim 9 wherein said outer race is further characterized by having a chord on the first end that engages said support member to prevent said outer race from rotating with respect to said axial opening in said support member.